reproducibility

of the Master Thesis

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what is reproducibility?

- A reproducible publication ensures a reviewer or reader can recreate the computational workflow of a study or experiment, including the prerequisite knowledge and the computational environment.
- The former implies the scientific argument to be understandable and sound.
- The latter requires a detailed description of used software and data, and both being openly available.

Nust et al. (2018),
Reproducible research and GIScience: an evaluation using AGILE conference papers.
PeerJ 6:e5072;
DOI 10.7717/peerj.5072

reproducibility today

_ more than 70% of researchers have tried and failed to reproduce another scientist's experiments,

_ more than 50% have failed to reproduce their own experiments.

https://www.nature.com/news/1-500-scientists-lift-the-lid-on-reproducibility-1.19970

NATURE | NEWS FEATURE

1,500 scientists lift the lid on reproducibility

Survey sheds light on the 'crisis' rocking research.

Monya Baker

25 May 2016 | Corrected: 28 July 2016

what's wrong about it?

- it is extremely inefficient
- everyone makes mistakes

why strive for reproducibility?

_ because it will soon become a standard requirement for publishing

- transparency / scientific integrity / FAIR data / Open Data / Open Science / Norms of Science

_ because it is beneficial for the (research) society

- reusing code & data / reanalyzing / expanding experiments / building upon research

_ because it is beneficial for your own workflow

- facilitates continuity / gives structure / spares problem resolving / makes writing paper easier

r e p r o d u c i b l e t h e s i s e x p e r i m e n t

_ reproducibility training (online, self-study) of about 8 hours

_ self-assessment statement & reflection in the thesis and

_ short surveys

_ the result will not (yet) negatively impact the grade of the thesis beyond the quality standards already in place

all material is published at https://osf.io/j97zp/

r e p r o d u c i b l e t h e s i s e x p e r i m e n t

_ self-study:

video lecture and three assignments (<8h)

_ you can ask questions about the assignments here:

_ github.com/erasmus-mundus-geotech-master/reproducibility-self-assessment

a few tips beforehand

_ data & code are (sort of) independent from each other

_ reproducibility is a spectrum”

- from “irreproducible”
- through “reproducible if…”
- to “reproducible

_ reproducibility as an afterthought does not work

m o r e i n f o r m a t i o n w i l l c o m e b y e m a i l

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